

Serial No. 10/063,094

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REMARKS

Applicant appreciates the consideration shown by the Office, as evidenced by the Office Action, mailed on July 27, 2003. In that Office Action, the Examiner rejected Claims 24-35. Claim 36 has been canceled, without prejudice, and new Claims 37-40 have been added in the present Amendment. As such, Claims 24-35 and new Claims 37-40 remain in the case with none of the claims being allowed.

The July 27 Office Action has been carefully considered. After such consideration, Claim 36 has been canceled, without prejudice, and new Claims 37-40 have been added. Applicant respectfully requests reconsideration of the application by the Examiner in light of the above amendments and the following remarks offered in response to the July 27 Office Action.

Restriction Requirement

The Examiner has required affirmation of the provisional election, with traverse, of Group I (Claims 24-35) made on June 23, 2003, by Applicants' counsel.

Applicants hereby affirm the election of Group I, with traverse. Applicants submit that MPEP §803 explicitly states: "If the search and examination of the entire application can be made without serious burden, the examiner *must* examine it on the merits even though it includes claims to independent or distinct inventions." Applicant submits that the search and examination of a method of making an article (Group I, Claims 24-35) and an article made by the method (Group II, Claim 36) do not impose a serious burden upon the Examiner, and that the entire application should be examined on the merits.

Applicants also submit that non-elected Claim 36 has been canceled, without prejudice, in the present amendment.

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Claim Interpretation

Applicants hereby object to the Examiner's interpretation of the phrase "expanding thermal plasma" to be a plasma "generated by passing argon or argon-oxygen mixture through a DC arc plasma generator..." Applicants submit that it is known in the art that an expanding thermal plasma can be generated by passing gases other than argon and argon-oxygen mixtures through a plasma generator. Applicants submit that paragraph [0032] of the specification states that "[t]he plasma gas may comprise a noble gas, nitrogen, ammonia, or hydrogen, for example, or any combination thereof, with argon being preferred." See also, for example, paragraphs [0027], [0028], and [0029] of U.S. Patent Application No. 09/683,149 (now U.S. Patent Application Publication US2003/0099784 A1), cited by the Examiner in the July 27 Office Action.

Rejections under 35 U.S.C. §103(a)

Claims 24-35 have been rejected under 35 U.S.C. §103(a) as being unpatentable over EP 887110 in view of Chan et al. (U.S. Patent 5,441,624).

Applicants submit that, if a proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. Accordingly, Applicants submit that the combination of EP 887110 and with Chan et al. would change the principle of operation of EP 887110.

Applicants submit that, as noted by the Examiner, EP 887110 discloses an expanding thermal plasma, which is generated in a plasma generator 2, as shown in Figure 1 and described on page 3, lines 28-35, of the reference. A plasma is generated in plasma chamber 2 and then passes through plasma inlet 6 and nozzle 5 into treatment chamber 4. Treatment chamber 4 is a vacuum chamber that is maintained at low pressure. The pressure within plasma generator 2 is significantly greater than the pressure in treatment chamber 4. The pressure differential between plasma generator 2 and treatment chamber 4 is necessary to produce a plasma jet, or expanding thermal plasma. This principle of operation of the expanding thermal plasma is also described in

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paragraph [0032] of the present application, as well as in paragraphs [0027], [0028], and [0029] of U.S. Patent Application No. 09/683,149 (now U.S. Patent Application Publication US2003/0099784 A1), cited by the Examiner in the July 27 Office Action.

Applicants submit that Chan et al. teach a plurality of plasma sources located *inside* the vacuum chamber 50 with the substrate 14. See column 3, lines 8-10, and Figures 7 and 8 of the reference. Applicants submit that to provide the device of EP 887110 with a plurality of plasma sources located inside the vacuum chamber, as taught by Chan et al., would destroy the principle of operation of EP 887110, as placement of the expanding thermal plasma generator of EP 887110 would eliminate the pressure differential that is needed to produce the expanding thermal plasma/plasma jet.

Applicants further submit that, because Chan et al. teach a plurality of plasma sources located inside the vacuum chamber with the substrate, the reference actually teaches *away* from locating plasma sources outside the vacuum chamber, as taught by EP 887110. Therefore, there is no suggestion or motivation to combine the references.

Applicants therefore submit that, because the combination of the prior art proposed by the Examiner would change the principle of operation of EP 887110, the teachings of the references are not sufficient to render the claims *prima facie* obvious. In addition, Applicants submit that, because the references teach away from each other, there is no suggestion or motivation to combine the references as proposed by the Examiner. Applicants therefore submit that the rejection of Claims 24-35 under 35 U.S.C. §103(a) as being unpatentable over EP 887110 in view of Chan et al. is successfully overcome.

Claims 24-30 and 32-35 have been rejected under 35 U.S.C. §103(a) as being unpatentable over EP 887110 in view of Ackerman et al. (U.S. Patent 5,062,508).

Applicants submit that, in order to establish a *prima facie* case of obviousness, the references must teach or suggest all of the claim limitations of the present invention. The requisite suggestion or motivation must come from the references themselves, rather than from the Applicants' specification. Accordingly, Applicants submit that the combination

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of references cited by the Examiner neither teaches nor suggest a method for coating a substrate that comprises generating a set of *at least two* expanding thermal plasma plumes. As noted by the Examiner in the July 27 Office Action, "EP887110 fails to explicitly disclose that multiple expanding thermal plasma plumes are generated..." Applicants further submit that Ackerman et al. do not teach generating a set of at least two expanding thermal plasma plumes, but instead, in column 2, lines 40-55, teach generating a single plasma.

Applicants therefore submit that, because the combination of references proposed by the Examiner neither teaches nor suggest all of the claim limitations of Claims 24-30 and 32-35, the rejection of the claims under 35 U.S.C. §103(a) as being unpatentable over EP 887110 in view of Ackerman et al. is successfully overcome.

Double Patenting

The Examiner has provisionally rejected Claims 24-35 under the judicially created doctrine of obviousness-type double patenting over claims 32-43 of co-pending Application No. 09/683,149, and over claims 35-48 of co-pending Application No. 09/683,148. Applicants hereby respectfully request that the obviousness-type double patenting rejections be held in abeyance pending resolution of the rejections under 35 U.S.C. §103(a).

In light of the amendment and remarks presented herein, Applicants submit that the case is in condition for immediate allowance and respectfully requests such action. If, however, any issues remain unresolved, the Examiner is invited to telephone the Applicants' counsel at the number provided below.

Respectfully submitted,



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